

# EXHIBIT A

UNITED STATES DISTRICT COURT  
DISTRICT OF MASSACHUSETTS

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)  
SINGULAR COMPUTING LLC, )  
)  
Plaintiff, )  
)  
vs. ) Civil Action No.  
) 1:19-cv-12551-FDS  
GOOGLE LLC, )  
)  
Defendant. )  
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VIDEOCONFERENCE DEPOSITION OF SUNIL KHATRI  
Friday, March 12, 2021  
Volume I

Reported by:  
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Job No. 4483047  
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1 BY MR. KAMBER:

2 Q And I'm just asking -- I'm not trying to make  
3 this more complicated than it seems, Dr. Khatri.  
4 I'm really just asking -- I mean, we've talked about  
5 the claim language, and it uses "differs by." There 12:30:14  
6 is some analysis of comparing an output result from  
7 the LPHDR execution unit to the output of an exact  
8 mathematical calculation, correct?

9 MR. SEEVE: Objection. Mischaracterizes the  
10 claim. Asked and answered. Vague. 12:30:33

11 THE WITNESS: So, again, you know, there's  
12 language that I've read out to you and that's very,  
13 very clear. And there's a test that wants to be  
14 done, and that test asks the person of ordinary  
15 skill in the art to see if, you know, the numerical 12:30:51  
16 values of the first output when they're executing  
17 that first operation differ by a certain amount.

18 Now, that's the plain language and that's  
19 basically quite clear as to what the person of  
20 ordinary skill in the art needs to do here. 12:31:10

21 BY MR. KAMBER:

22 Q Can you tell whether a number differs from  
23 another number without comparing them?

24 MR. SEEVE: Objection. Incomplete  
25 hypothetical. Vague. 12:31:20

1 to be tested. And that's as clear as daylight  
2 because it says that in the claim language.

3 BY MR. KAMBER:

4 Q Does the term "repeated execution" have any  
5 practical effect with respect to a digital 12:35:16  
6 embodiment?

7 MR. SEEVE: Objection. Calls for  
8 speculation. It goes outside the opinions presented  
9 in the declaration at issue here.

10 THE WITNESS: So I would request you to point 12:35:32  
11 me to a portion of my declaration where you're  
12 referring to for this question.

13 BY MR. KAMBER:

14 Q Your declaration says that -- does an  
15 analysis with respect to analog embodiments, 12:35:46  
16 correct?

17 A Once again, can you show me the specific  
18 language, please?

19 Q The language of what?

20 A That you're referring to from my declaration. 12:35:58  
21 Like the paragraph that you want -- that you're  
22 referring to.

23 THE VIDEOGRAPHER: Dr. Khatri, could you  
24 please adjust your camera so you're more in the  
25 center of the picture? 12:36:15

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1 Q And when you're referring to a fluctuating  
2 arithmetic average, I'm just asking if the  
3 statistical mean of the results after repeated  
4 execution is going to shift; it might be above the  
5 claimed degree of inaccuracy or it might be below 01:14:53  
6 the degree of inaccuracy claimed in the patents?

7 MR. SEEVE: Objection. Vague.  
8 Mischaracterizes the testimony. Mischaracterizes  
9 the declaration. Mischaracterizes the claim.

10 THE WITNESS: So what line 2 means is that 01:15:09  
11 when you perform the same operation twice -- so if  
12 you apply the same exact inputs, right, then there  
13 is statistical variation in the output values. So  
14 that's -- you know, based on that initially, we --  
15 the arithmetic average would be varying, it would 01:15:34  
16 fluctuate, is what this line explains.

17 BY MR. KAMBER:

18 Q And when you say that it fluctuates, that  
19 might mean it's above or it might be sometimes below  
20 the claimed degree of inaccuracy, correct? 01:15:50

21 MR. SEEVE: Objection. Mischaracterizes the  
22 witness's testimony. Mischaracterizes the  
23 declaration.

24 THE WITNESS: I mean, it says it will  
25 fluctuate. This -- this line in and of itself 01:16:00

1 don't know how to answer your question because I  
2 don't know how you would track, and I don't know  
3 what words you used. Track and calculate the  
4 outputs of the processor or something?

5 BY MR. KAMBER:

6 Q That's correct, Dr. Khatri. In order to  
7 calculate the statistical mean of a repeated  
8 execution of a particular operation on particular  
9 inputs, you would have to track the number of times  
10 that particular calculation was performed on those 01:38:28  
11 particular inputs, correct?

12 MR. SEEVE: Objection.

13 THE WITNESS: So, again, this is all  
14 mischaracterizing my declaration and also whatever I  
15 might have said to you right now. 01:38:43

16 The way one would calculate, you know, the  
17 statistical mean is shown in my declaration in  
18 paragraph 34, right, where I basically do the same  
19 experiment that Dr. Wei conducted, and I have a  
20 little plot that shows the results from that 01:39:02  
21 experiment. And in that -- in that plot, you know,  
22 there is a blue line that indicates the -- the --  
23 you know, the -- you know, if you look at the plot  
24 on paragraph 34, right, there is basically a value  
25 that has an average of 2.0, and it varies from that. 01:39:26

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1           So, for example, if you look at page 10, the  
2     fifth line, there's a blue line that is the average  
3     of the -- sort of the green dots that are the  
4     different samples. And the blue line shows the  
5     average of the output values for the first X number     01:39:53  
6     of samples or for the X -- first X repeated  
7     execution.

8           So when X is 10, the blue line represents the  
9     average of the first 10 values or the first 10  
10    executions. And as you can see in that plot, the     01:40:18  
11    blue line varies in the beginning, fluctuates in the  
12    beginning, but then it stabilizes, you know, as the  
13    number of repeated executions increase. And that's  
14    the statistical mean.

15   BY MR. KAMBER:   01:40:42

16       Q    You said the blue line on -- in paragraph 34  
17    is the statistical mean?

18       A    That's not what I said.

19           MR. SEEVE:  Objection.  Mischaracterizes the  
20    witness's testimony.                                     01:40:55

21           THE WITNESS:  That's not what I said.

22   BY MR. KAMBER:

23       Q    Okay.  I'm sorry, maybe I misread.  You said:

24               "The blue line varies in the  
25    beginning, fluctuates in the                             01:41:02

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1 beginning, but then it stabilizes, you  
2 know, as the number of repeated  
3 executions increase, and that's the  
4 statistical mean."

5 That's what you said, correct, Dr. Khatri? 01:41:12

6 A Let's see.

7 Q The question is just if that's correct. Did  
8 you say that? Did you say those words? That's my  
9 only question, Dr. Khatri.

10 MR. SEEVE: I'm sorry. Matthias, I'll ask 01:41:22  
11 you to give Dr. Khatri a moment -- time to answer.  
12 You asked him if he said a whole bunch of very  
13 specific text. Dr. Khatri needs to verify if he, in  
14 fact, did say that text.

15 MR. KAMBER: Okay. 01:41:36

16 THE WITNESS: I would need to read that,  
17 Matthias. Let me see where that is in that  
18 transcript.

19 BY MR. KAMBER:

20 Q It's page 60, line -- starting at line 20. 01:41:43

21 A I'm not able to see -- hold on.

22 I'm not used to this transcript thing, so --  
23 you guys must be very used to it, but I'm not.

24 Okay. How about this, right? I'll just sort  
25 of scratch that out, just sort of repeat this for 01:42:09

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1 you. How's that? Just make sure we get the -- you  
2 know, get this right without any more further  
3 clarification.

4 So I'm going to point you to a portion of  
5 paragraph 34 on line 10. Probably all of it, but I 01:42:20  
6 can read the portion that is more relevant to what  
7 we just discussed.

8 There we go. Okay. So let's go to -- I'm  
9 going to read you paragraph 34, from line 6 of it,  
10 at the beginning of line 6 on page 10. It says: 01:42:43

11 "At first, near the left side of  
12 the graph, the arithmetic average of  
13 the output value is unstable and  
14 fluctuates significantly over short  
15 periods of time." 01:42:55

16 And in parentheses:

17 "As shown by the magnified  
18 portion of the graph outlined using  
19 the red box," close paren.

20 "However, the arithmetic average 01:43:06  
21 of the output value begins to  
22 stabilize with more repeated  
23 executions of that single operation,  
24 holding steady at a value of 2.00.

25 Therefore, no matter how many other 01:43:20

1 repeated executions are added, the  
2 arithmetic average of the output value  
3 never varies from 2.00 by more than a  
4 few hundredths of a percent, as shown  
5 by the magnified portion of the graph 01:43:35  
6 outlined in orange. This portion of  
7 the graph represents the statistical  
8 mean over repeated execution of the  
9 first operation recited in the  
10 claims." 01:43:48

11 So this is basically what I was saying. And  
12 I just want to make sure that that's what you  
13 understood.

14 Q Let me ask a question about the chart that  
15 you were just describing. There is a reference to 01:43:59  
16 the blue line and in the key it says, "cumulative  
17 mean."

18 Do you see that?

19 MR. SEEVE: Objection. Vague.

20 THE WITNESS: Yes. The legend in the 01:44:17  
21 graph --

22 BY MR. KAMBER:

23 Q Yes.

24 A -- shows the blue line as cumulative mean.

25 Q What is a cumulative mean? 01:44:23

1 testimony. Calls for a legal conclusion. Calls for  
2 speculation about matters not included in  
3 Dr. Khatri's declaration in this case.

4 THE WITNESS: So it's important to understand  
5 the statement carefully. And I can see how you're 03:22:06  
6 very easily liable to misunderstand it.

7 It's talking about performing -- when we talk  
8 about arithmetic at a high level, you know -- you  
9 know, we're operating on numbers. But the actual  
10 LPHDR units or the circuits would be operated on, as 03:22:33  
11 the claim suggests, on actual -- you know, on input  
12 signals and output signals, which have values. So  
13 that distinction is important to make. And I can  
14 see where that might be confusing to you when you  
15 read this language. 03:22:50

16 An LPHDR execution unit performs operations  
17 on input signals, you know, which have values. But  
18 when we talk about it broadly or globally, when we  
19 say we're doing LPHDR arithmetic, it's kind of a  
20 high level statement. That's just saying that, you 03:23:20  
21 know, we're operating -- you know, that this  
22 arithmetic is done based on numbers which are  
23 represented by voltages.

24 So the operations -- in this statement, it's  
25 quite clear that the operation is done on voltages, 03:23:30